Non-pharmacological Methods in Relieving Children's Pain in Hospital: a pilot study

Lucy A. Seldon

University of Canterbury

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Abstract

Non-pharmacological methods of pain management are reported to be effective in alleviating pain felt by paediatric patients. Despite this, international literature has identified a lack of implementation of non-pharmacological methods in practice. Following an extensive review of relevant literature, it was identified that no research on the topic of non-pharmacological methods of pain management has been conducted in New Zealand. Given this, the research question for this small pilot study was: Do New Zealand registered nurses use non-pharmacological methods of postoperative pain management for paediatric surgical patients, and if so, to what extent? Three international research papers have investigated the utilisation of non-pharmacological methods of pain management by nurses in Finland, Singapore and China through use of a questionnaire. This questionnaire was adapted for a New Zealand context and distributed to registered nurses working in a paediatric surgical ward in one district health board. Though the sample size of 16 was small, the results showed that participants were using a variety of non-pharmacological methods which correlates with international literature. These methods include distraction, repositioning, positive reinforcement, therapeutic touch, comforting/reassurance, presence, helping with daily activities, creating a comfortable environment, and more. This suggests that participating nurses are staying current with global approaches to pain management in paediatric patients. Further research into the topic of pain management in paediatric patients is recommended to expand knowledge in this area and improve clinical practice. Replicating this pilot study on a nationwide scale would provide more detailed information about New Zealand nurses' utilisation of non-pharmacological methods of pain management and allow valid comparisons to be made with international research.

Key words: Non-Pharmacological Methods, Pain Management, Nursing, Paediatric, Child

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Glossary

Non-pharmacological – Therapy without the use of drugs or medications.

Paediatric patient – A child ranging from birth to age 16 years.

Pain – An unpleasant sensation caused by illness or injury which is conveyed to the brain by sensory neurons. It can have both physical and psychological components.

Postoperative pain – Pain experienced following surgery.

Presence – The nurse being present with the child and spending time with them.

Procedural pain – Pain experienced during, or following, a short medical procedure.

School-aged children – For this study, school-aged children were considered to be those between eight and twelve years old.

Chapter One – Introduction and Background

The management of pain for paediatric patients has been examined extensively along with on-going research of how best to manage and treat this pain. Whilst analgesic medications are the standard method of alleviating pain, non-pharmacological methods have been identified as also being highly effective (He et al., 2010; Koller & Goldman, 2012; Olmstead, Scott, Mayan, Koop & Reid, 2014; Polkki, Pietila, Vehvilainen-Julkunen, Laukkala, & Kiviluoma, 2008). Despite substantial evidence, a lack of implementation of non-pharmacological methods has been recognised in health care practices and could be contributing to children's unresolved pain in hospital (He et al., 2010; Olmstead et al, 2014). The aim of this small pilot study is to determine registered nurses utilisation of non-pharmacological pain management techniques when caring for postoperative paediatric patients. A section of Polkki, Vehvilainen-Julkunen and Pietila's (2001) validated questionnaire has been adapted for the New Zealand context and distributed to registered nurses working in a surgical, paediatric ward in the local hospital (Appendix A; Appendix B). This questionnaire has been used in three studies based in Finland, Singapore and China (He, Polkki, Vehvilainen-Julkunen, & Pietila, 2005; He et al., 2011; Polkki et al., 2001).

Chapter one will examine the existing literature relevant to the field of non-pharmacological methods of pain management in children. Chapter two will explain the research approach and describe the methods used. Detail will be provided about the study design, ethical considerations, sampling, data collection, the instrument, and data analysis. Chapter three will describe the results of the study, with reference to both background factors and nurses' utilisation of non-pharmacological methods of pain management. Chapter four offers a discussion of the results, as well as the conclusion. Comparisons will be made between the results of this pilot study and relevant international literature. Strengths and

limitations of this study will also be considered, and recommendations for further research will be made.

Literature Review

Non-pharmacologic methods. Current research shows that non-pharmacological methods can be very successful at alleviating children's pain (He et al., 2010; Koller & Goldman, 2012; Olmstead et al., 2014; Polkki et al., 2008; Wang, Sun & Chen, 2008). Such methods can be used independently, or alongside pharmacological methods, such as analgesic medication, to help manage and alleviate pain felt by children (He et al., 2010). There are numerous methods of non-pharmacological pain management which are commonly divided into four categories (He et al, 2005; He et al, 2011; Polkki et al., 2001; Ward, 2016). The first category is cognitive-behavioural methods which include imagery, distraction, relaxation, breathing technique and positive reinforcement. These methods act to change the way the child thinks or behaves around pain and have been proven to have good efficacy in alleviating pain in paediatric patients (Koller & Goldman, 2012; Wang et al., 2008; Ward, 2016). The second category is physical methods and includes positioning of the child, thermal regulation (application of cold or heat), therapeutic touch and transcutaneous electrical nerve stimulation. It has been acknowledged by Polkki et al. (2001) and He et al. (2011) that there is limited research on the efficacy of physical methods of non-pharmacological methods of pain management in paediatric patients; however according to He et al. (2011) the research on adults appears to be able to be transferable to children. The third category is emotional support and includes presence of the nurse, comforting/reassurance and asking the child to suggest methods of alleviating their pain. These methods of non-pharmacological pain management have also been recognised as being successful at alleviating pain in paediatric patients (Coffman et al., 1997; Polkki et al., 2001).

The final category encompasses methods which do not fall under the other three headings. It includes helping the child with daily activities and creating a comfortable environment for the child (He et al, 2005; He et al, 2011; Polkki et al., 2001; Ward, 2016). These methods of pain management have proven to be effective in alleviating pain in postoperative patients, and it is recommended in the literature that these interventions should be implemented more widely in hospital settings (Koller & Goldman, 2012; Olmstead et al., 2014; Wang et al., 2008).

Barriers to implementation. Despite the evidence that non-pharmacological methods of pain management are effective for paediatric patients, Olmstead et al. (2014) have identified that there is a lack of implementation in clinical areas. Their qualitative study investigated the different influences shaping seven Canadian nurse's use of distraction as a non-pharmacological method of pain management (Olmstead et al., 2014). Both Olmstead et al. (2014) and He et al. (2010) recognised that the lack of implementation could be a result of barriers to pain management such as: historical/traditional approaches to pain management, the individual nurses, and the organisation and its policies. He et al. (2005) utilised a questionnaire to determine the utilisation of non-pharmacological methods of pain management by 183 Chinese nurses and the factors that influence this. They identified that the nurses had traditionally used prescribed pharmacological analgesia and were not aware of alternative options (He et al., 2005). Olmstead et al. (2014) recognised that the clinical experience of each nurse is influential in their decision to use non-pharmacological methods. Experience is acknowledged as being a potential facilitator and barrier to utilisation of such methods (Olmstead et al., 2014). He et al. (2005) identified that organisational barriers, such as shortage of nurses or a heavy workload, could be a limiting factor in the utilisation of non-pharmacological methods due to it reducing time available to spend with the child. Wang et al. (2008) recognised that nurses can lack the time needed to adequately implement non-pharmacological methods of pain management. Olmstead et al. (2014) also identified time as

a factor in utilising non-pharmacological methods. Nurses were identified as feeling that sometimes a painful procedure needed to be completed in a timely manner to minimise trauma for the child (Olmstead et al., 2014). This resulted in nurses foregoing non-pharmacological methods, such as distraction, in order to reduce the amount of time taken to complete the procedure (Olmstead et al., 2014). These studies all identified time as a barrier facing nurses in the implementation of non-pharmacological pain management techniques.

Several authors (He, Vehvilainen-Julkunen, Pietila, & Polkki, 2008; He et al., 2010; Olmstead et al., 2014) have recognised that other barriers include nurses' lack of knowledge about the concept of pain and how to best manage it. He et al. (2008) noted that many nurses did not have enough knowledge, or experience, with the concept of pain to manage it effectively, nor implement any non-pharmacological methods. If nurses are not educated about the administration and utilisation of non-pharmacological methods, this will not promote implementation in practice. Olmstead et al. (2014) identified that nurses' believed that their knowledge from education, and also experimentation with these methods, affected their decision making and their ability to implement distraction effectively. Both He et al. (2008) and Olmstead et al. (2014) recognised the importance of knowledge in the successful implementation of non-pharmacological methods; however He et al. (2010) acknowledges that it is not lack of knowledge alone creating a barrier. A combination of various barriers, such as heavy workload, lack of time, and lack of knowledge, is believed to be the main reason behind the lack of implementation of non-pharmacological methods in practice (He et al., 2010). More empirical research is needed to determine nurses' current knowledge and utilisation of such practices to determine the barriers preventing the implementation of non-pharmacological methods.

The parent's role. The role of parents in non-pharmacological pain management has been noted in some studies as an important factor in nurse's utilisation of such methods (He et al., 2005; Piira, Sugiura, Champion, Donnelly, and Cole, 2005). Parents in China were said to be relied on in hospital by the nurses to be with their child and help with daily activities which reduced the nurses' utilisation of these non-pharmacological methods (He et al., 2005). Twycross, Finley and Latimer (2013) conducted an observational study examining the postoperative pain care practices for ten children in a Canadian hospital by 17 different nurses. They identified that these Canadian nurses' thought of non-pharmacological methods of pain management as the responsibility of the parents (Twycross et al., 2013). Twycross et al. (2013) believed this to be due to the nurses' perception that their job is to administer analgesic medications, and not to utilise alternative methods. Piira et al. (2005) recognised that parents have a unique role in pain management because they know what their child has previously experienced, and therefore what has helped, or not helped, in the past. Nurse's should be able to utilise the parents as a source of knowledge on the best way of managing their child's pain, but should also be able to suggest and implement other methods (Piira et al., 2005).

Procedural pain versus postoperative pain. The majority of studies identified as investigating non-pharmacological methods of pain management examined the use of such methods with acute or post procedural pain (Bellieni et al., 2006; Gupta et al., 2006; Uman et al., 2013; Wang et al., 2008). Procedural pain refers to pain experienced during or after a short medical procedure, such as venepuncture or a dressing change (Polkki et al., 2001). The most commonly researched procedural pain appeared to be related to needle based interventions, such as venepuncture or injections (Bellieni et al., 2006; Gupta et al., 2006; Uman et al., 2013; Wang et al., 2008). Postoperative pain has been identified as a longer lasting pain compared with procedural pain, therefore non-pharmacological methods of pain

management would likely have different effects (Olmstead et al., 2014). Idvall, Holm, and Runeson (2005) conducted a study looking at six children's experience of pain following a tonsillectomy. They recognised that specific procedures may form their own pain pattern which needs to be identified by nurses before a decision of what pain management method is made (Idvall et al., 2005). Polkki et al. (2001) identified the lack of research into the utilisation of non-pharmacological methods of postoperative pain management in paediatric nursing compared with research into procedural pain management. Polkki et al. (2001) conducted research into the utilisation of non-pharmacological methods of pain management for postoperative paediatric patients in Finland, which has since been replicated in China and Singapore (He et al., 2005; He et al., 2011). There is a growing amount of research on paediatric pain management; however more research is needed to ascertain the differences that non-pharmacological methods of pain management have on a child's postoperative pain compared with procedural pain.

Implementation in practice. There are numerous methods of non-pharmacological pain management with proven efficacy, yet there appears to be little research into how nurses are utilising these methods into their practice, especially for postoperative patients. Polkki et al. (2001) recognised that, despite plenty of research proving the efficacy of non-pharmacological methods, there were few studies which looked specifically at their implementation in practice. Their study of 162 Finnish nurses used a questionnaire to determine whether non-pharmacological methods were currently being utilised in practice with postoperative, paediatric patients (Polkki et al., 2001). Polkki et al.'s (2001) study, which has been repeated in China and Singapore (He et al., 2005; He et al., 2011), has shown that nurses are integrating different methods of postoperative pain management into their practice, in addition to widely used pharmacological methods. Polkki et al.'s (2001), He et al.'s (2005) and He et al.'s (2011) studies all identified that nurse's are commonly utilising

methods such as distraction, repositioning, positive reinforcement, therapeutic touch, comforting/reassurance, and creating a comfortable environment. The similarities in the utilisation of non-pharmacological methods of pain management in Finland, China and Singapore suggest that other countries could have similar utilisation levels.

Research question. A database search found that no research on this topic has been conducted in New Zealand (Appendix C). Given this, the aim of this small study was to determine registered nurses utilisation of non-pharmacological methods of postoperative pain management for paediatric surgical patients. The research question was: Do New Zealand registered nurses use non-pharmacological methods of postoperative pain management for paediatric surgical patients, and if so, to what extent?

Chapter One Summary

Non-pharmacological methods of pain management have been proven to have good efficacy alleviating pain in postoperative paediatric patients. These methods include techniques such as distraction, repositioning, and thermal application. International literature suggests that non-pharmacological methods of pain management are not being utilised as much as recommended in the field of paediatric nursing. Several barriers to implementation of such methods have been identified and include: knowledge and experience of the nurse, availability of time, heavy workload, and local policies and procedures. It is an area of nursing which is recognised as needing further research to determine specific reasons why non-pharmacological methods are not being utilised as widely as recommended.

It was identified that several studies have been conducted internationally which use a questionnaire to determine utilisation of a variety of non-pharmacological methods of pain management in postoperative paediatric patients. Since there is a lack of identified literature on utilisation of non-pharmacological methods of pain management in New Zealand, it was

decided to replicate the international questionnaire in the New Zealand context. The research question for this pilot study was: do New Zealand registered nurses use non-pharmacological methods of postoperative pain management for paediatric surgical patients, and if so, to what extent?

Chapter two will explore the research approach and describe the method of research, with detail on study design, ethical considerations, sampling, data collection and data analysis.

Chapter Two – Method

Chapter Two Introduction

This chapter will outline the research design and method used in this pilot study. It will begin by discussing the study design, the ethical considerations, and the inclusion/exclusion criteria of the sample. The details of recruitment will be explained, followed by how data was collected. The instrument will be described, with information about adaptations for this study. Finally, details on data analysis and data storage will be outlined.

Study Design

A descriptive exploratory cross-sectional study approach was used to describe the current use of non-pharmacological methods used by registered nurses, in one post-operative paediatric unit, at a certain point in time. Two selected sections of Polkki et al.'s (2001) validated questionnaire were used to gain an understanding of the participant demographics and the utilisation of non-pharmacological methods of pain management. This questionnaire has been used in several studies internationally however no evidence has been found of its use in New Zealand (He et al., 2005; He et al., 2011; Polkki et al, 2001) (Appendix C). This method was chosen to obtain detailed, quantifiable data on the use of non-pharmacological methods of pain management, as a pilot study. The questionnaire asks questions about how often nurses' utilise specific non-pharmacological techniques in order to collect data.

Ethical Considerations

Permission had been gained from the original author to utilise and adapt the questionnaire in this study (Appendix I). Ethical consent and Maori consultation was gained from the University of Canterbury (Appendix D; Appendix E). Once the University of

Canterbury had provided consent, local authorisation and Maori consultation was gained from the local district health board (Appendix F; Appendix G)

Inclusion/Exclusion Criteria

Those eligible to participant were registered nurses who currently worked in the paediatric, surgical ward of one district health board in New Zealand. Enrolled nurses and allied health professionals were not eligible to participate as the original questionnaire was specifically written for registered nurses.

Recruitment

The researcher contacted the charge nurse manager of the participating ward and arranged to meet with registered nursing staff, across all three shifts (morning, afternoon, and night shift). The questionnaire was distributed at this time. The researcher described the research to eligible participants at the time of distribution, as well as explaining the consent process and that the results would be anonymous and that participation was voluntary. Remaining questionnaires were left on the ward for nurses who were not present. A submission box was left on the ward for participants to submit their completed questionnaires. The researcher's contact details were also left on the ward in order for participants to contact the researcher if needed. A further meeting with potential participants was undertaken the following week to distribute questionnaires to those nurses missed in the initial meeting. The submission box was in place for three weeks.

Three methods were utilised to encourage a high response rate of participants. The questionnaire took approximately 10 to 15 minutes to complete. This was important as the participants were likely to be busy, and might not have completed a longer questionnaire. It has been suggested that participants are more likely to complete questionnaires if the time

taken to complete was between ten and twenty minutes (Edwards et al., 2009; Galesic & Bosnjak, 2009; VanGeest, Johnson & Welch, 2007).

The second method was the researcher attending nursing handovers to present an introduction to the research. The researcher attended four nursing handovers, over several days, and at varying times of the day to talk to as many nurses as possible. This acted to promote and generate interest in completing the questionnaire, and also in finding out the results (VanGeest et al., 2007).

The final method of increasing response rate was to offer participants evidence that they participated in a research project. This was provided in the form of a letter and could be used by the participants as evidence for their Annual Practicing Certificate as meeting the requirements of the New Zealand Nursing Competency 4.3: Participates in quality improvement activities to monitor and improve standards of nursing (Appendix H). Several studies have suggested using an incentive as a method to increase participant response rate (Edwards et al., 2009; VanGeest et al., 2007). A monetary incentive appears to be the best method of improving response rate however this was not feasible in this pilot study so a non-monetary incentive was chosen.

Data Collection

Data was collected via a paper based, self-report questionnaire which has been used in Finland, China and Singapore (He et al., 2005; He et al., 2011; Polkki et al, 2001) (Appendix A; Appendix B). Permission had been gained from the original author to utilise and adapt the questionnaire in this study (Appendix I). The first page of the questionnaire outlined the research, explained that the results will be anonymous, indicated that participation is voluntary, and provided the contact information of the researcher (Appendix B). The last page of the questionnaire gave a space for the participant to give their email address if they

chose to receive evidence of participating in a research project for their Annual Practising Certificate. It explained how this was optional and that their email address would remain confidential (Appendix B). Once completed questionnaires were received, the last page of each questionnaire (Appendix B) was immediately separated to protect the identity of the participants who had decided to include their email address.

The Instrument

In total there were thirty nine questions, divided into two sections (Appendix B). Section one was background data, and section two was about school-aged children's postoperative pain management. Section one consisted of questions about participant demographics in order to determine whether these were related to the nurses' use of non-pharmacological methods. The participant demographics sought were: gender, age, ethnicity, registered nurse job title, and experience of paediatric surgical nursing. Due to time constraints, it was decided that only one section of the original questionnaire would be used. The section chosen was 'children's postoperative pain management', as it was determined to be the section which elicited data on a wide variety of non-pharmacological methods (Polkki et al, 2001). This section had questions on the nurses' utilisation of a variety of cognitive-behavioural methods, physical methods, and emotional support, as well as questions about helping with daily activities and creating a comfortable environment.

Questions in section one had a variety of mutually exclusive multi choice designs, open ended designs, and a mix of both. Questions in section two were in the style of a 5 point Likert response scale to get a better understanding of the quantity of utilisation of different non-pharmacological methods. The response options ranged from 'not at all', 'very seldom', 'sometimes', 'nearly always' to 'always'. These questions were presented in a closed ended, mutually exclusive design. Questions 7.4, 9.8, 12.2, 12.3, 13.1, 13.2, and 21.5 also had an

open ended area which allowed participants to write additional open-text answers that were not listed.

Instrument Adaptation

The questions were carefully examined and edited for the New Zealand context with consultation from a specialist in the field of paediatric nursing in New Zealand. As a result the following minor changes were made. A question about ethnicity was added to section one. The ethnicity question categories were taken from the New Zealand Census (Statistics New Zealand, 2011). Staffing job titles were changed from 'children's nurse/practical nurse', 'registered nurse' and 'clinical specialist nurse' to 'staff nurse', 'clinical nurse specialist' and 'other' to better reflect nursing titles and terminology in New Zealand. Question 18 was also changed from 'touching' to 'therapeutic touch' following the advice from the paediatric nurse specialist.

Data Storage

The completed questionnaires were given to the researcher's supervisor to store securely at the University of Canterbury campus. They are locked in a cabinet and will remain there for five years before being securely destroyed.

Data Analysis

Descriptive statistical analysis was used to analyse the quantitative data. Data was entered into Microsoft Excel (version 12); this included open text data. Microsoft Excel was used to calculate percentages and means. Details of the descriptive statistics can be found in Table 1 and Table 2. Content analysis for the open text data was conducted by categorising the answers into common themes.

Chapter Two Summary

Following ethical approval, the questionnaire was distributed to registered nurses working on the paediatric, surgical ward in the local district health board. The questionnaire was paper based and was adapted from an international research paper. It had two sections, one on background demographics of participants, and one on children's postoperative pain management. Questions were predominantly in the style of a 5 point Likert response scale. Once the questionnaires were collected, data was entered on Microsoft Excel for descriptive, statistical analysis. The questionnaires were then stored securely at the University of Canterbury campus.

Chapter three will describe the results of the questionnaire, including the response rate, background factors, and the utilisation of non-pharmacological methods of pain management.

Chapter Three - Results

Chapter Three Introduction

This chapter outlines the results. Firstly, the response rate and background factors of participants will be described. Secondly, the utilisation of non-pharmacological methods will be explained. This will provide detail on the each of the different sections of methods: cognitive-behavioural methods, physical methods, emotional support, and other methods.

Response Rate

Of the 24 questionnaires distributed, 17 were returned. One was discarded because it was completed by an enrolled nurse. This resulted in a response rate of 67% (16/24). This is a high response rate however the small sample size needs to be taken into consideration when interpreting the results (Baruch & Holtom, 2008).

Background Factors

The first section of the questionnaire consisted of five questions to determine some background factors of participants (Table 1). All of the participants were female (n=16, 100%). Ages of participants ranged from 22 to 66 years, with the mean age being 42.9 years. Most of the participants were 41 years old or greater (n=8, 50%). The majority of participants identified as New Zealand European (n= 15, 94%), the remaining 6% identified as ‘other’ (n=1). Experience of paediatric surgical nursing ranged from three months to 30 years, with the mean being 11.5 years. Most participants had experience of 5 or less years (n= 7, 44%) or 11 years or greater (n=7, 44%). Regarding job titles, 88% (n=14) of participants were staff nurses and 12% (n=2) identified as ‘other’.

Table 1-Background data

Background Factor	n (%)
Sex	
Female	16 (100)
Male	0 (0)
Other	0 (0)
Age (years)	
21-30	4 (25)
31-40	4 (25)
41+	8 (50)
Ethnicity	
New Zealand European	15 (94)
Maori	0 (0)
Other	1 (6)
Registered Nurse Job Title	
Staff Nurse	14 (88)
Other	2 (12)
Experience of Paediatric Surgical Nursing (years)	
0-5	7 (44)
6-10	2 (12)
11+	7 (44)

Nurses Use of Non-pharmacological Methods

A summary of the statistical results can be found in Table 2. Figure 1 displays the average utilisation of methods from the different categories of non-pharmacological methods. The majority of participants ‘nearly always’ or ‘always’ used physical methods (n=7, 44%), emotional support (n=11, 69%), helping with daily activities (n=16, 100%), and creating a comfortable environment (n=15, 94%). Cognitive-behavioural methods were only used ‘sometimes’ (n=6.2, 39%).

Table 2- Non-pharmacological methods used for pain management

Non-pharmacological Method	Not at all *n* (%)	Very seldom *n* (%)	Sometimes *n* (%)	Nearly always *n* (%)	Always *n* (%)
Cognitive-behavioural methods					
Imagery	1 (6)	6 (38)	8 (50)	1 (6)	0 (0)
Distraction	0 (0)	0 (0)	3 (18)	6 (38)	7 (44)
Relaxation	1 (6)	5 (31)	6 (38)	4 (25)	0 (0)
Breathing technique	0 (0)	1 (6)	8 (50)	5 (31)	2 (13)
Positive reinforcement[a]	0 (0)	1 (6)	6 (38)	6 (38)	3 (18)
Physical methods					
Positioning	0 (0)	1 (6)	0 (0)	9 (56)	6 (38)
Thermal regulation[b]	1 (6)	3 (18)	10 (63)	2 (13)	0 (0)
Therapeutic touch	0 (0)	1 (6)	4 (25)	9 (56)	2 (13)
TENS[c]	16 (100)	0 (0)	0 (0)	0 (0)	0 (0)
Emotional support					
Presence	0 (0)	1 (6)	4 (25)	8 (50)	3 (19)
Comforting/reassurance	0 (0)	0 (0)	0 (0)	9 (56)	7 (44)
Asking the child	0 (0)	4 (25)	6 (38)	4 (25)	2 (12)
Helping with daily activities	0 (0)	0 (0)	0 (0)	10 (62)	6 (38)
Creating a comfortable environment	0 (0)	0 (0)	1 (6)	5 (31)	10 (63)

[a]Both verbal and material. [b]Both heat and cold. [c]Transcutaneous Electrical Nerve Stimulation

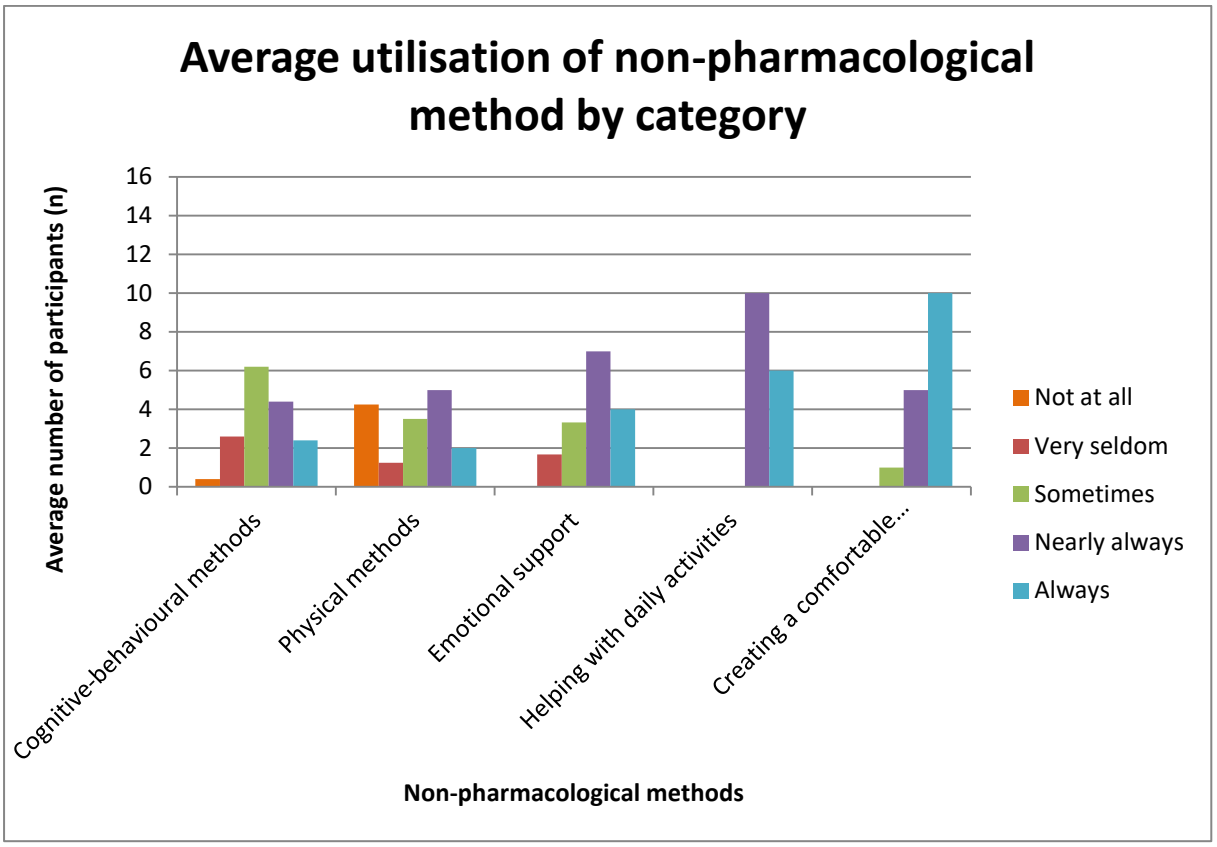

Figure 1: Average utilisation of non-pharmacological method by category

Cognitive-behavioural Methods of Pain Management

A summary of the utilisation of cognitive-behavioural methods of pain management can be found in Figure 2. Of these cognitive-behavioural methods of non-pharmacological methods of pain management, distraction was the most commonly 'always' (n=7, 44%) used. Encouraging the child to think about or imagine pleasant imagery (n=8, 50%), encouraging the child to relax different parts of their body (n=6, 38%) and teaching the child the correct breathing technique (n=8, 50%) to alleviate pain were all most commonly 'sometimes' used by participants as a method of non-pharmacological pain management. Using positive reinforcement by giving some form of reward to the child was equally 'sometimes' and 'nearly always' used by participants (n=6, 67%). Imagery and relaxation were the only two cognitive-behavioural methods of which one participant identified as using 'not at all' (n=1,

6%). These two methods also had higher levels of ‘very seldom’ use than the other cognitive-behavioural methods.

Encouraging the child to think about or imagine pleasant imagery was utilised ‘sometimes’ by 50% (n=8) of participants. The nurse’s who reported some level of utilisation were asked what they encouraged the child to think about. A pleasant place was equally ‘very seldom’ (n=5, 42%) and ‘sometimes’ (n=5, 42%) utilised by participants. A nice excursion or trip was ‘very seldom’ (n=6, 67%) used by participants and a favourite activity was ‘sometimes’ (n=6, 55%) used by participants. Other methods of encouragement were ‘sometimes’ used by two participants and ‘nearly always’ used by two participants. These other methods were identified in the open text data as encouraging the child to think about their favourite toy, television show or game, what they will be able to once they are better, their family, friends and pets, Christmas time, and their birthday. Content analysis revealed that personal imagery was a theme that was common as an ‘other’ method of encouragement used by participants.

Using distraction as a method of focusing the child’s attention or thoughts away from their pain was utilised ‘nearly always’ (n=6, 38%) or ‘always’ (n=7, 44%) by participants. The respondent’s utilisation of different methods of distraction was diverse. Book and magazines were equally ‘very seldom’ (n=5, 33%) used and ‘nearly always’ (n=5, 33%) used by participants as a form of distraction. Talking about their daily lives (n=9, 60%) and humour (n=5, 33%) were used ‘nearly always’ by participants to distract the child from their pain. Watching television or videos (n=8, 50%) and listening to music (n=9, 56%) were used ‘sometimes’ by participants, whilst playing games (n=7, 47%) and doing hobby crafts (n=6, 40%) were ‘very seldom’ used by participants. Other methods of distraction were

'sometimes' used by two participants and were identified in the open text data as including breathing and colouring in.

Using positive reinforcement by giving some form of reward to the child was equally 'sometimes' and 'nearly always' used by nurses participants (n=6, 67%). Encouraging the child verbally following a surgical procedure was 'nearly always' (n=7, 44%) used by participants to help manage pain. Giving the child a material reward was 'sometimes' (n=8, 50%) used by participants postoperatively. Material rewards were identified in the open text data as ice blocks, stickers, bravery badges/awards, watching a video, and giving a high five. Content analysis revealed a theme of material rewards displaying a child's achievement or courage, such as stickers and bravery badges, was common. Other methods of rewarding the child were 'sometimes' used by eight participants, and were identified in the open text data as including getting to spend time in the activity room or playroom, watching a movie, ice cream, jelly, ice blocks, food, drinks, stickers, and spending time outside in a wheelchair.

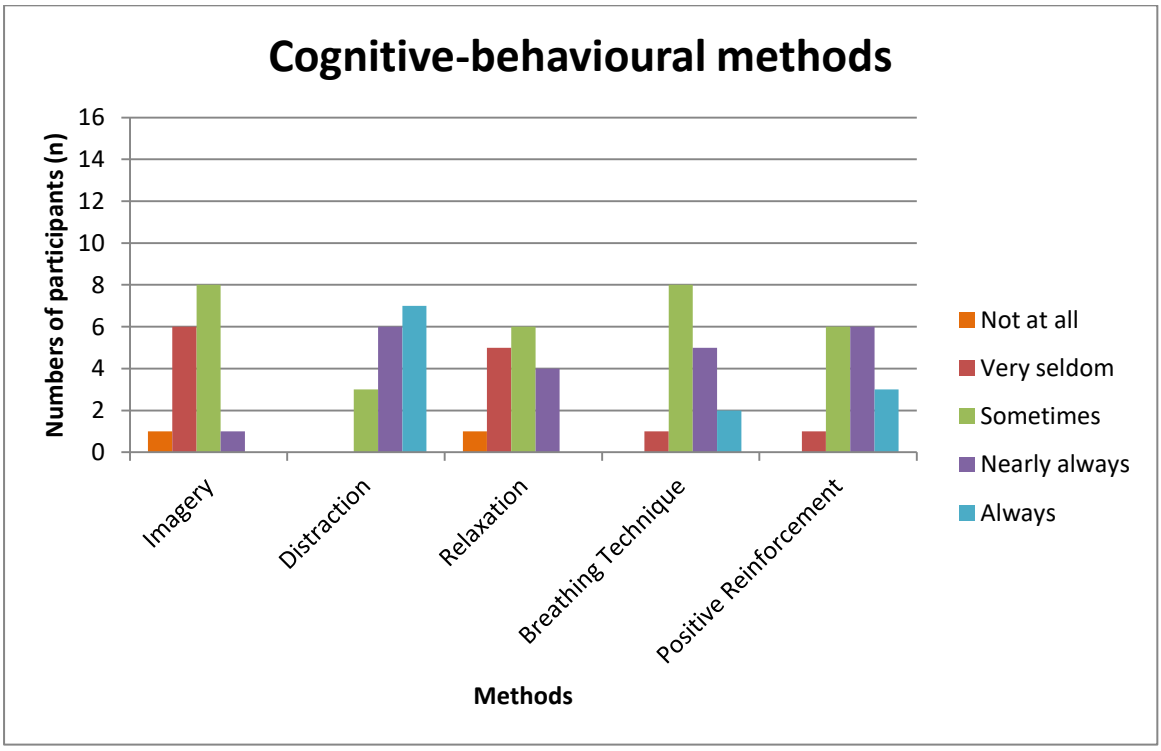

Figure 2: Cognitive-behavioural methods

Physical Methods of Pain Management

A summary of the utilisation of physical methods of pain management can be found in Figure 3. Of these physical methods of non-pharmacological methods of pain management, alleviating pain by positioning the child was the most commonly 'always' (n=6, 38%) used. The majority of participants 'nearly always' used positioning (n=9, 56%) and therapeutic touch (n=9, 56%) to manage pain. Thermal regulation was 'sometimes' used by 63% (n=10) of the participants to help alleviate pain. Transcutaneous Electrical Nerve Stimulation was the only method to be used 'not at all' by 100% (n=16) of participants.

Thermal regulation was 'sometimes' used by participants as a method of pain management (n=10, 63%). Cold application was used 'sometimes' by 44% (n=7) of participants, whilst heat application was 'sometimes' used by 75% (n=12) of participants. Of the participants, 19% (n=3) 'nearly always' used cold application and 13% (n=2) 'nearly always' used heat application. Methods of cold application were identified by participants in the open text data as including cold cloth's, ice packs, chipped ice in a bag, cool sense (a pain numbing applicator), icy flannels, ice blocks, and cold sprays. Content analysis revealed a theme of easy, quick methods of cold application being used. Methods of heat application were identified by participants in the open text data as including warm/heated towels, warm/heated blankets, and heat packs. Warm towels and blankets were the most commonly identified methods of heat application in the open text answers.

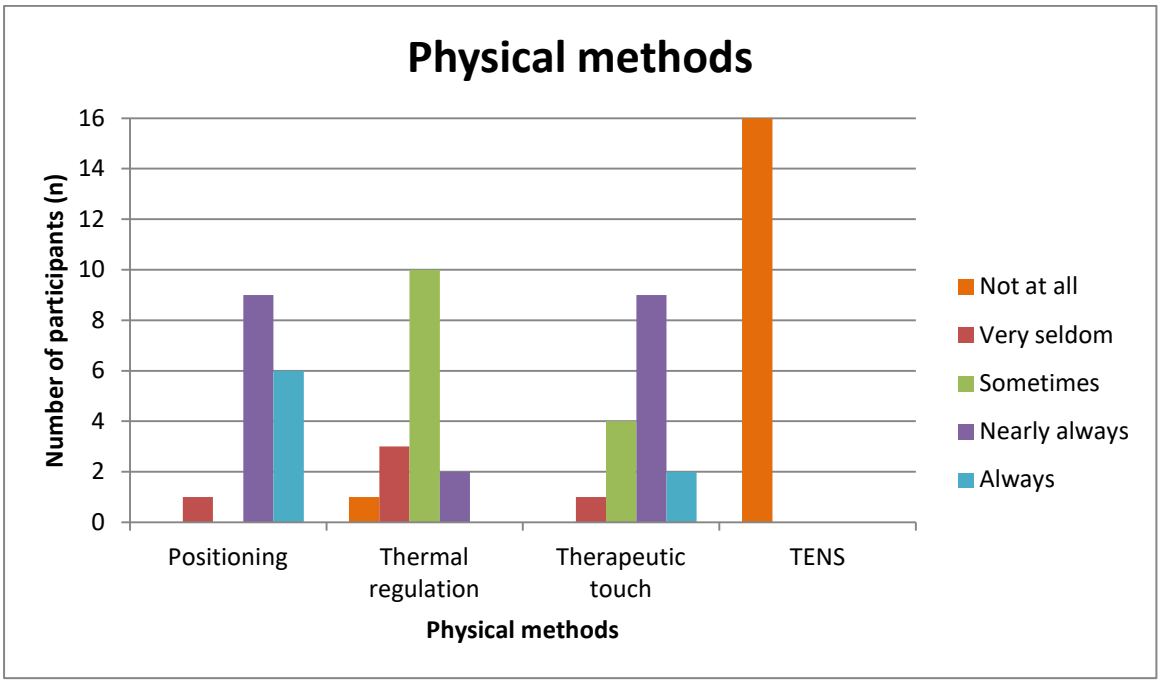

Figure 3: Physical methods

Emotional Support as a Method of Pain Management

A summary of the utilisation of emotional support as a method of pain management can be found in Figure 4. Methods of emotional support were commonly ‘always’ or ‘nearly always’ used by participants to manage pain. Spending time with the child (presence) was ‘nearly always’ used by participants to alleviate postoperative pain (n=8, 50%). Providing comfort and reassurance to the child was ‘nearly always’ used by 56% (n=9) of participants and ‘always’ used by 44% (n=7) of participants to alleviate postoperative pain. Asking the child to suggest ways of alleviating pain was ‘sometimes’ (n=6, 38%) used by participants as a method of pain management.

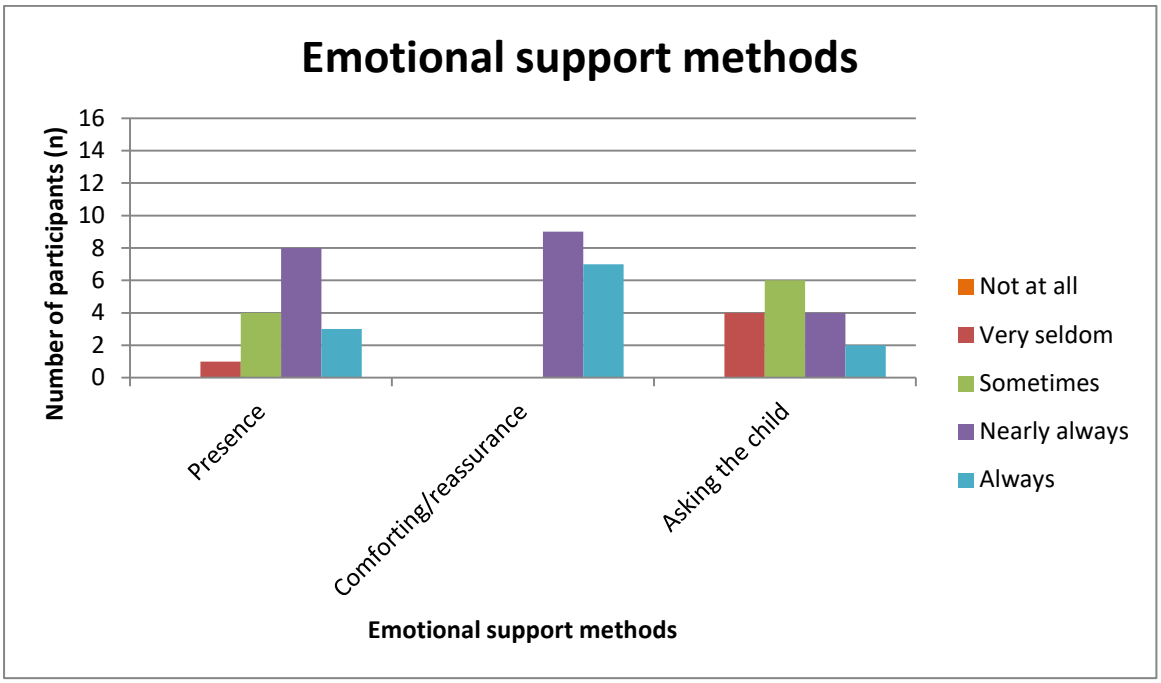

Figure 4: Emotional support methods

Other Methods of Pain Management

A summary of the utilisation of other methods of pain management can be found in Figure 5. Helping the child with activities of daily living was 'nearly always' used by participants as methods of pain management following surgery (n=10, 62%). Making the environment comfortable for the child was 'always' used by 63% (n=10) of participants to manage postoperative pain. Providing a suitable room temperature and good air conditioning was equally 'sometimes' (n=5, 31%) and 'always' (n=5, 31%) used by participants to make the environment comfortable. Providing the child with the possibility of rest by minimising noise was 'nearly always' (n=9, 56%) by participants whilst encouraging the child's parent to bring some of the child's own belongings onto the ward was 'always' (n=10, 63%) used by participants s. Paying attention to the interior decoration was 'sometimes' used by 31% (n=5) of participating nurse's. Utilising 'other' methods of providing a comfortable environment for the child was 'sometimes' used by three participants and 'always' used by three participants. These 'other' methods were identified in the open text data and included improving the odour

of the room, nice bedding, good hygiene practices, distracting the child, putting items of use within the child's reach, having the child's favourite items in the room, having a parental presence and encouraging them to stay with their child, and displaying cards/letters/ pictures in front of the child's bed. The themes that emerged following content analysis were methods of comfort and providing familiarity

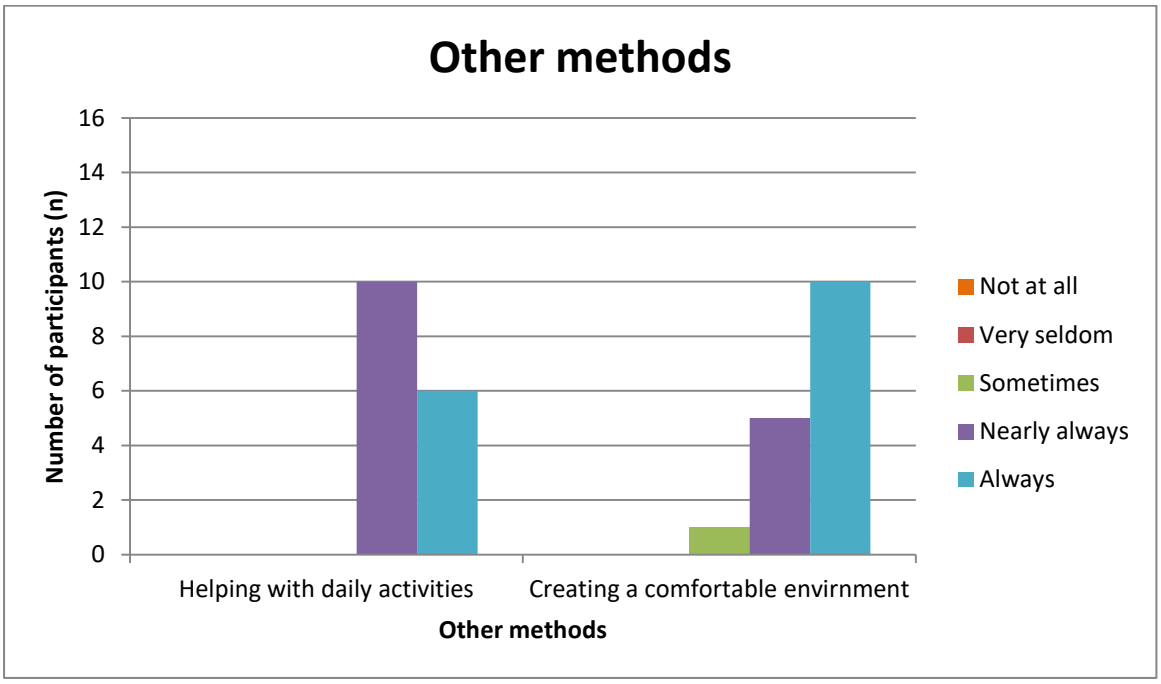

Figure 5: Other methods

Chapter Three Summary

The response rate was 67%. All participants were female, with the majority being older than 41 years. Most identified as New Zealand European, and the majority had paediatric nursing experience of either 5 or less years, or 11 years or greater. The majority of participants identified as staff nurses.

Of the different methods of non-pharmacological pain management the majority of participants 'nearly always' or 'always' used physical methods, emotional support, helping with daily activities, and creating a comfortable environment. Cognitive-behavioural methods

were, on average, most commonly used ‘sometimes’. Of the individual methods, distraction and comforting/reassurance were the most commonly ‘always’ used techniques. The least used method, which was ‘not at all’ used by all participants, was Transcutaneous Electrical Nerve Stimulation.

Chapter four will provide a discussion of the results, including strengths and limitations of this study, and recommendations for future research. A conclusion will consolidate the information and reinforce the importance of this research.

Chapter Four – Discussion and Conclusion

Chapter Four Introduction

This chapter will discuss the results and findings. It will provide comparisons with international literature and provide details on each of the non-pharmacological methods of pain management. The strengths and limitations of this small pilot study will also be discussed and will be followed by recommendations for future research. The chapter will end with a conclusion to summarise and consolidate this pilot study.

Discussion

Research question. This pilot study was designed to answer the following research question: Do New Zealand registered nurses use non-pharmacological methods of postoperative pain management for paediatric surgical patients, and if so, to what extent? The results have provided insight into the utilisation of non-pharmacological pain management techniques by a small cohort of New Zealand registered nurses. A response rate of 67% was low compared to international studies using the same questionnaire, however it was still moderately high in terms of the sample size and provided enough information to form a conclusion based on the small population (He et al., 2005; He et al., 2011; Polkki et al., 2001).

Commonly used non-pharmacological methods. The results showed a wide variety of non-pharmacological pain management techniques were being utilised postoperatively in children, which aligns with the previous international studies using the same questionnaire (He et al., 2005; He et al., 2011; Polkki et al., 2001). The majority of participating registered nurses regularly utilise a wide range of non-pharmacological pain management techniques. The majority of participants ‘nearly always’ or ‘always’ used physical methods, emotional

support, helping with daily activities and creating a comfortable environment which parallels with international literature (He et al., 2005; He et al., 2011; Polkki et al., 2001). Cognitive-behavioural methods were, on average, most commonly used 'sometimes' by participants which is also a similar finding to the international studies using the same questionnaire (He et al., 2005; He et al., 2011; Polkki et al., 2001). The individual methods which were particularly common included: distraction, repositioning, positive reinforcement, therapeutic touch, comforting/reassurance, presence, helping with daily activities, and creating a comfortable environment. These individual non-pharmacological pain management techniques were used 'nearly always' or 'always' by the majority of nurses who participated and correlated with findings from the international studies using the same questionnaire (He et al., 2005; He et al., 2011; Polkki et al., 2001). The findings from this New Zealand study also parallel another international study using a different research instrument (Caty, Tourigny & Koren). Caty et al. (1995) found that Canadian nurses' also commonly utilised methods such as distraction, repositioning, presence and therapeutic touch in their management of paediatric pain.

Role of parents. Whilst there were numerous parallels between the commonly utilised non-pharmacological methods of participating nurses and nurses from Finland, China and Singapore, there was one difference identified (He et al., 2005; He et al., 2011; Polkki et al., 2001). This difference was in the Chinese study by He et al. (2005). Chinese nurses were found to not routinely use presence or helping with daily activities to relieve pain in children following surgery. He et al. (2005) explained the low utilisation of presence and helping with daily activities as a cultural difference. Chinese parents were said to be relied on in hospital by the nurses to be with their child and help with daily activities which could explain the difference compared to the other countries studied (He et al., 2005). A similar finding was identified by Twycross et al. (2013) who found that Canadian nurses' believed that non-

pharmacological methods of pain management were the responsibility of the parents. Twycross et al. (2013) believed this to be due to the nurses' perception that their job is to administer analgesic medications, and not to utilise alternative methods. Participating nurses in this pilot study identified as using presence and helping with daily activities 'nearly always' suggesting that parents, in this context, are not as relied on as heavily as those in China. The variety of utilisation of non-pharmacological methods also suggests that participating nurses believe that their role encompasses such methods, unlike the Canadian nurses in Twycross et al.'s study (2013). Despite these finding, Piira et al. (2005) recognised that parents have a unique role in pain management because they know what their child has previously experienced, and therefore what has helped, or not helped, in the past. Nurse's should be able to utilise the parents as a source of knowledge on the best way of managing their child's pain and include them in pain management, but should also be able to suggest and implement other methods. Further investigation into the role of parents in the utilisation of non-pharmacological methods could provide additional insight into the differences seen between these international studies.

Distraction. Distraction was one of the most commonly used non-pharmacological method in this pilot study, as well as in all three international studies using this same questionnaire (He et al., 2005; He et al., 2011; Polkki et al., 2001). The method that participating New Zealand registered nurses used as a distraction varied greatly. Commonly used methods identified by the participants included books and magazines, talking about their daily lives, humour, colouring, television, video games and music. Wang et al. (2008) recognised that distraction is a simple, easy to implement, cost-effective cognitive-behavioural method of pain management which can be adjusted for different aged children and varying situations. It has also been proven to have good success in alleviating pain in children, though it has been recognised that each individual child responds differently

(Olmstead et al., 2014; Stinson, Yamada, Dickson, Lamba, & Stevens, 2008; Uman, Chambers, McGrath, & Kisely, 2008; Wang et al., 2008). These positive aspects of distraction could be a contributing factor to the high utilisation levels seen in this study, and the international studies (Caty et al., 1995; He et al., 2005; He et al., 2011; Polkki et al., 2001). The other methods that were commonly used across these studies included repositioning, positive reinforcement, therapeutic touch, comforting/reassurance, presence, helping with daily activities, and creating a comfortable environment. These methods are similar to distraction in the fact that they are also simple, easy to implement, cost-effective, and can be adjusted for different aged children and varying situations. These factors appear to be important in the high levels of utilisation seen by nurses across the studies using this same questionnaire (He et al., 2005; He et al., 2011; Polkki et al., 2001).

Positive reinforcement. Providing positive reinforcement by giving the child a material reward was 'nearly always' or 'always' used by the majority of nurses' postoperatively to manage pain. Material rewards were identified in the open text answers as ice blocks, stickers, bravery badges/awards, watching a video, and giving a high five. A theme of rewards displaying a child's achievement or courage emerged from content analysis. Other methods of rewarding the child were 'sometimes' used by eight participants, and were identified as including getting to spend time in the activity room or playroom, watching a movie, ice cream, jelly, ice blocks, food, drinks, stickers, and spending time outside in a wheelchair. Polkki et al. (2001) also identified that stickers and food were commonly used as material rewards. This could be due the appealing nature of these rewards to children and how easy and cost effective they are to provide.

Making the environment comfortable. Making the environment comfortable for the child was 'always' used by 63% of the participants to manage postoperative pain. Commonly

used methods of making the environment comfortable included providing the child with the possibility of rest by minimising noise and encouraging the child's parent to bring some of the child's own belongings onto the ward. Other methods identified in the open text answers as being used included putting items of use within the child's reach, having the child's favourite items in the room, and displaying cards/letters/ pictures in front of the child's bed. Comfort and familiarity emerged from this study as themes important in the child's environment. The other three studies had similar findings with comparable levels of utilisation (He et al., 2005; He et al., 2011; Polkki et al., 2001).

Methods used 'sometimes'. The results of this small pilot study indicated several techniques in which the majority of participating nurses only 'sometimes' used in practice. These techniques were: imagery, relaxation, breathing technique, and thermal regulation. These results correlated less with those from the three international studies using the same questionnaire, than the more commonly used methods (He et al., 2005; He et al., 2011; Polkki et al., 2001). Nurses in China and Finland were also found to 'sometimes' use imagery as a method to relieve pain which correlated with the findings of this study; however Singaporean nurses were more likely to 'nearly always' or 'always' use imagery. Encouraging the child to think about pleasant imagery had varied utilisation for the participants from this study based on the specific image that the child was encouraged to think about. More commonly used images included their favourite toy, their family/friends, their pets, and special events. Relaxation was 'nearly always' or 'always' used by nurses in Singapore and China, and equally used 'sometimes', 'nearly always' and 'always' by nurses in Finland. The results of the international studies showed a difference in nurses compared with the participating nurses in this study who were more likely to 'sometimes' use relaxation. Breathing techniques was 'nearly always' or 'always' used by the nurses in all three international studies, compared with only 'sometimes' used by nurses in this study. The utilisation of thermal regulation was

more similar. Singaporean, Finnish and participating New Zealand nurses in this study were all more likely to 'sometimes' use thermal regulation as a method to relieve pain, compared with 'not at all' or 'very seldom' used by nurses in China (He et al., 2005; He et al., 2011; Polkki et al., 2001). Cold application was used more often than heat application in this study which could be due to a local district health board policy related to the banning of wheat bags and hot water bottles, which restricts heat application to warm blankets/towels and heat packs (Appendix J). The variance between utilisation of the identified techniques between countries could also be due to local policy differences, teaching methods, differences in culture, or a variety of other effects. This pilot study is unable to provide more in depth reasoning behind the differences in utilisation compared with other countries. To discover the specific reasons behind this variance, further research into background factors would be needed.

Methods used 'not at all'. The results of this pilot study showed one technique which was 'not at all' used by all of the nurses who participated. This technique was Transcutaneous Electrical Nerve Stimulation (TENS) and was the only method in this study that was used less than 'sometimes' by the majority of nurses. No technique was identified as being used predominantly 'very seldom' used in this study. The high lack of use of TENS paralleled with the international studies using the same questionnaire (He et al., 2005; Polkki et al., 2001). Both Polkki et al.'s (2001) study and He et al.'s (2005) found that the majority of nurses either used TENS 'not at all' or 'very seldom'. He et al. (2011) removed the question regarding utilisation of TENS as it is not a method used in postoperative pain management in Singapore; it is only used for management of chronic pain. Polkki et al. (2001) recognised that the lack of utilisation identified in their study could have been due to TENS predominantly being used by physiotherapists in Finland and might be a less known technique for nurses. He et al. (2005) thought that TENS might be too time consuming and harder to utilise than other non-pharmacological methods, therefore reducing its utilisation in

practice. These reasons could be similar for participating nurses in this study as TENS is available for use within the local district health board where the research took place but is not being utilised by nurses. More in depth research would be needed to determine the reasons behind the lack of utilisation of this non-pharmacological method of pain management, especially in the New Zealand context.

Barriers in implementation. Potential barriers to the utilisation of non-pharmacological methods of pain management have been identified in the literature. Olmstead et al. (2014) identified several factors which could influence the nurse's utilisation of non-pharmacological methods. These include: nursing knowledge, clinical experience, and availability of time. Olmstead et al. (2014), He et al. (2005), Wang et al. (2008) all acknowledged that lack of time is an important factor in the implementation of these methods which has resulted in nurses foregoing non-pharmacological methods, such as distraction, in order to reduce the amount of time taken to complete the procedure. Lack of knowledge has also been identified as being an influential barrier to the utilisation of non-pharmacological methods. He et al. (2008) and Olmstead et al. (2014) noted that many nurses did not have enough knowledge, or experience, with non-pharmacological pain management to implement any methods effectively. He et al. (2010) also recognised that lack of utilisation could be a result of specific barriers to pain management shaped by historical/traditional approaches to pain management, the individual nurse, the organisation and/or the environment. Whilst these barriers are unable to be identified from this study, it would be interesting to investigate this further to potentially provide valuable information in order to increase implementation of these methods in practice.

Postoperative pain versus procedural pain. This pilot study was investigating registered nurses' utilisation of non-pharmacological methods of pain management

specifically in postoperative children. It was identified in the literature that many of the previous studies researching non-pharmacological methods of pain management were exploring the use of such methods with acute, procedural pain, such as venepuncture (Bellieni et al., 2006; Gupta et al., 2006; Uman et al., 2013; Wang et al., 2008). Procedural pain could be experienced differently to postoperative pain and therefore non-pharmacological methods of pain management would likely have different effects (Olmstead et al., 2014). This study, as well as the three international studies using the same questionnaire identified the utilisation of non-pharmacological methods in postoperative patients (He et al., 2005; He et al., 2011; Polkki et al., 2001). It would be of interest to compare this utilisation with children undergoing painful acute procedures to determine whether there is a difference. Following on from this, it would also be interesting to discover if the efficacy of these non-pharmacological differs depending on whether it is procedural pain or postoperative pain. It is clear that more research is needed to determine the difference, if any, between procedural pain and postoperative pain and the methods of management.

Association between background factors and utilisation of methods. All three of the previous international studies using the same questionnaire as this study found statistically significant associations between some of the background factors and the utilisation of methods (He et al., 2005; He et al., 2011; Polkki et al., 2001). The background factors that proved to be influential in the utilisation of non-pharmacological methods in all of these international studies were age, job title and paediatric nursing experience (He et al., 2005; He et al., 2011; Polkki et al., 2001). The associated methods included creating a comfortable environment, positioning, verbal rewarding, presence, cold application, comforting/reassurance, and therapeutic touch (He et al., 2005; He et al., 2011; Polkki et al., 2001). The findings by Polkki et al. (2001), He et al. (2005) and He et al. (2011) correlate

with the research done by Olmstead et al. (2014) and Stanley and Pollard (2013) into influencing factors on utilisation and knowledge of pain management techniques. Olmstead et al. (2014) recognised how nursing experience is influential in the management of pain in children, and that older nurses were more likely to use non-pharmacological techniques than younger nurses. Stanley and Pollard (2013) identified a statistically significant correlation between nursing experience and knowledge of pain management techniques. Nurses with greater years of nursing experience were found to have a higher level of knowledge into pain management compared with those with less years of nursing experience (Stanley & Pollard, 2013). It is possible that New Zealand nurses would have similar associations between background factors and utilisation of non-pharmacological methods, though no conclusions can be made from this pilot study. Further research with a larger sample size would be needed to determine a conclusion.

Concluding discussion. The results found in this study are promising as it indicates that New Zealand nurses are maintaining evidence based practice as according to international literature (He et al., 2010; Koller & Goldman, 2012; Olmstead et al., 2014; Polkki et al., 2008). Non-pharmacological methods in pain management have proven to have good efficacy with paediatric patients and are recommended to be utilised in hospitals (Olmstead et al., 2014, Uman et al., 2008). Despite the literature proving efficacy, these methods are still being identified as not being implemented as recommended (Olmstead et al., 2014). This initial pilot study into New Zealand nurses' utilisation of non-pharmacological methods of postoperative pain management shows a variety of techniques being used in varying levels. A wider study using the same questionnaire should be conducted across the district health boards nationwide to determine whether the results of this pilot study are indicative of the nurses in all of New Zealand.

Strengths of this Study

This is the first apparent study researching the registered nurse's utilisation of non-pharmacological methods of pain management for post-surgery paediatric patients in New Zealand. Although the sample size was small, the results none-the-less contribute to the body of knowledge about the use of non-pharmacological methods of pain management for post-surgery paediatric patients (He et al., 2005; He et al., 2011; Polkki et al., 2001). This pilot study was never going to have a large sample due to the small field of paediatric surgical nurses in each region of New Zealand. The participating nurses were from the only post-surgical ward of one major hospital from one region of New Zealand. It is clear that some methods of non-pharmacological methods of pain management are more commonly utilised than other methods which is comparable with international literature (He et al., 2005; He et al., 2011; Polkki et al., 2001). The results from this study can be used as a foundation for further research into this topic in the New Zealand context.

Limitations of this Study

This research was conducted as a pilot study. The sample size was small, and consisted of 16 participants from one post-operative paediatric unit. This means that the results need to be read with caution, and cannot be extrapolated to a wider population.

Furthermore, due to time constraints only two sections of the original questionnaire were replicated. Using the full original questionnaire would have provided more information about the utilisation of non-pharmacological methods by New Zealand registered nurses.

This pilot study collected data from registered nurses only. The role of enrolled nurses and allied health professionals in the management of post-surgical pain in children using non-pharmacological methods also needs to be examined. The role of parents could also influence

the nurses' utilisation of non-pharmacological methods and thus should also be investigated further.

Recommendations

Four recommendations are suggested for further research:

1. Based on the limitations of this research it is recommended that a national wide study, sampling all registered nurses in New Zealand who work with paediatric, surgical patients, is undertaken. The questionnaire should be used in its entirety, using all the original sections. This would provide a clearer and more comprehensive view of the use of non-pharmacological methods of pain management in New Zealand and allow for comparisons with international practice.

2. Following a repeat of this study with a larger population, it is recommended that a qualitative based study should be undertaken to determine the underlying reasons why there are differences between the utilisation of certain methods of non-pharmacological pain management. This should investigate different undergraduate teaching methods (domestic and international), local district health board policies, ward policies, as well as what each individual nurse believes influences their practice. This could provide information which would be useful to tertiary institutions, district health boards, hospitals and nurses to potentially improve knowledge and utilisation of non-pharmacological methods and therefore improve practice.

3. Another recommendation is to determine what roles New Zealand parents have in hospital and whether this is comparable to other countries. In addition to researching the role of parents, a study including enrolled nurses and allied health professionals as participants should also be conducted to determine whether their role influences the utilisation of non-

pharmacological methods by registered nurses. This could affect the different levels of utilisation seen in these studies and could provide valuable information into the utilisation of non-pharmacological methods of pain management.

4. The final recommendation is that the questionnaire should have clearer instructions to reduce the number of incorrectly filled out answers, and the number of no answers at all. Another potential way of reducing this would be to conduct the questionnaire online which would restrict the participants' ability to move on if a question is not answered. This would provide more statistically valid data, and therefore produce stronger results.

Conclusion

Pain management for paediatric patients is an area of research which is developing and gathering momentum. Non-pharmacological methods of pain management have been recognised as an effective way of treating paediatric patients. Despite evidence proving this efficacy, it has been found that implementation in clinical areas is lacking. The results from this pilot study will help facilitate further research into the management of paediatric pain in New Zealand and optimistically help to lessen the pain felt by hospitalised children.

This pilot study has investigated the utilisation of non-pharmacological methods of pain management of a small cohort of nurses in New Zealand. Though the sample size was small, the results indicated that nurses in New Zealand are using a variety of non-pharmacological methods. These methods include distraction, repositioning, positive reinforcement, therapeutic touch, comforting/reassurance, presence, helping with daily activities, creating a comfortable environment, and more. This suggests that New Zealand nurses are staying advanced with global approaches to pain management in paediatric patients.

Further research into the topic of pain management in paediatric patients is needed to expand knowledge in this area and improve clinical practice. Replicating this pilot study on a nationwide scale would provide information on New Zealand nurses' utilisation of non-pharmacological methods of pain management in an approach which is statistically strong. This would allow valid comparisons to be made with the international research that has utilised the same questionnaire. Following this, research into barriers affecting the utilisation of such methods, and the role of enrolled nurses, allied health professionals and parents in pain management would provide valuable insight into the utilisation of non-pharmacological methods of pain management. The recommendations for further research aim to provide details and evidence into practices of non-pharmacological pain management with hope to lessen the pain felt by children hospital worldwide.

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Appendices

Appendix A: original international questionnaire

Non-pharmacological methods in school-aged children's postoperative pain relief.

QUESTIONNAIRE TO NURSES

Background data

Answer the questions by circling the alternative you consider correct or by writing your answer in the space provided.

Respondent's background data

1. Sex
   1 female
   2 male
2. Age _____

3. Education
   1 children's nurse
   2 registered nurse
   3 clinical specialist nurse, specialization _____
   4 other, what_____

4. Experience of health care _____ years _____ months

5. Experience of paediatric surgical nursing _____ years _____ months

6. Do you have children of your own?
   1 no
   2 yes, how many _____
   (If you don't have children of your own, move on to question 8.)

7. Have you been in hospital with your child/children as an inpatient?
   1 no
   2 yes, how many times _____

Description of work unit

8. Unit where you are currently working
   1 Helsinki University Hospital, ward _____
   2 Kuopio University Hospital, ward _____
   3 Oulu University Hospital, ward _____
   4 Tampere University Hospital, ward _____
   5 Turku University Hospital, ward _____

9. Which of the following types of work organization are used in your ward?
   1 task-oriented nursing
   (the traditional practice of allocating different tasks to different nurses – the care of a single patient is the responsibility of several nurses)
   2 modular nursing
   (the ward has been divided into areas allocated to nursing teams – the care of a single patient is the responsibility of a certain number of ”module” nurses)
   3 primary nursing
   (the care of a single patient is the responsibility of the primary nurse appointed for him/her)
   4 other, what_____
   _____

10. In your opinion, how fluent is multiprofessional co-operation (between doctors, nurses, physiotherapists, etc.) in your ward?
   1 fluent
   2 moderate
   3 poor

11. How is pain management organized in your ward? (You can circle more than one alternative.)
   1 the ward has an appointed nurse specialized in pain management
   2 the ward has written pain management instructions for the nursing staff concerning
      1 pain medication
      2 other pain relieving interventions
   3 the ward has written instructions available for the child/parents concerning
      1 pain medication
      2 other pain relieving interventions
   4 the nurse can consult others about problems in the management of children’s pain, who _____
   _____
   5 pain management has been arranged in some other way, how _____
   _____

12. Is there a pain assessment tool available for evaluating children’s pain in your ward?
   1 no
   2 yes, what _____
   (e.g. Happy-Sad-Face, Pain Colours, the Visual Analogue Scale)

Non-pharmacological methods

The following statements pertain to the use of non-pharmacological methods in postoperative pain relief among *school-aged children (8 − 12 yr)*. In each item, circle the reply alternative that best represents your own actions. **Answer each item**, unless otherwise mentioned (e.g. if you do not use one of the listed methods, circle the alternative 1 = not at all). Also circle one of the alternatives 1 – 5 in the open-ended questions (other, what _____).

Reply alternatives
1 = not at all
2 = very seldom
3 = sometimes
4 = nearly always
5 = always

	Not at all	Very seldom	Sometimes	Nearly always	Always
Preparation of a child for a surgical procedure					
13. I prepare a school-aged child carefully for the operation by telling him/her about what will be done.	1	2	3	4	5
14. If your circled any of the alternatives 2 – 5 in item 13, which of the following matters do you discuss with the child before the procedure					
14.1 what kind of procedure will be done	1	2	3	4	5
14.2 where will the procedure be done	1	2	3	4	5
14.3 by whom will the procedure be done	1	2	3	4	5
14.4 why is it important to do the procedure	1	2	3	4	5
14.5 how long will the procedure last	1	2	3	4	5
14.6 preparations for the procedure (abstaining from food, premedication, etc.)	1	2	3	4	5
14.7 type of anaesthesia (general/local anaesthesia)	1	2	3	4	5
14.8 postoperative placement (recovery room, inpatient ward/ICU)	1	2	3	4	5
14.9 postoperative monitoring in the ward	1	2	3	4	5
14.10 postoperative limitations (e.g. what things can/cannot be done by the child)	1	2	3	4	5
14.11 pain medication after the procedure	1	2	3	4	5
14.12 other methods of pain relief	1	2	3	4	5
14.13 other, what _____ _____ _____	1	2	3	4	5
15. I encourage the child to ask about misconceptions	1	2	3	4	5

	Not at all	Very seldom	sometimes	Nearly always	Always
16. When informing school-aged patients, I use as help					
16.1 books/instructions folders					
16.2 videos	1	2	3	4	5
16.3 demonstrations (e.g. showing some of the instruments needed in the operation)	1	2	3	4	5
16.4 visiting the surgical ward beforehand with the child	1	2	3	4	5
16.5 other, what _____	1	2	3	4	5
_____	1	2	3	4	5
_____					
_____					
17. When preparing the child for an operation, I discuss with him/her the following matters					
17.1 sensations before the procedure (e.g. fear/anxiety)	1	2	3	4	5
17.2 sensations during the procedure (e.g. pain)	1	2	3	4	5
17.3 sensations after the procedure (e.g. pain, nausea)	1	2	3	4	5
18. If I notice that the child is feeling fear/anxiety, I discuss that openly with him/her.	1	2	3	4	5
19. I inform the child honestly and openly.	1	2	3	4	5
20. I make sure that the child has understood the information (e.g. by asking specifying questions)	1	2	3	4	5
21. When I prepare a child for a procedure, I take into account his/her age and developmental level.	1	2	3	4	5
22. I tell a school-aged child more about the procedure than a younger child.	1	2	3	4	5

	Not at all	Very seldom	Sometimes	Nearly always	Always
Children's postoperative pain management					
23. I encourage the child to think about/imagine pleasant and positive matters when s/he feels pain after the operation.	1	2	3	4	5
24. If you answered any of the alternatives 2 – 4 in item 23, which of the following matters do you urge the child to think about	1	2	3	4	5
24.1 a pleasant place	1	2	3	4	5
24.2 a nice excursion/trip	1	2	3	4	5
24.3 a favourite activity	1	2	3	4	5
24.4 other, what _____ _____ _____ _____					
25. I try to focus a school-aged child's thoughts/attention away from pain.	1	2	3	4	5
26. If you answered any of the alternatives 2 – 5 of item 25, which of the following things do you use as distraction					
26.1 books/magazines					
26.2 talking about the daily lives	1	2	3	4	5
26.3 playing games	1	2	3	4	5
26.4 watching television/videos	1	2	3	4	5
26.5 listening to music	1	2	3	4	5
26.6 hobby crafts	1	2	3	4	5
26.7 humour	1	2	3	4	5
26.8 other, what _____	1	2	3	4	5
_____	1	2	3	4	5
_____					
_____					
27. I encourage the child to relax different parts of his/her body to alleviate the sensation of pain.	1	2	3	4	5
28. I teach the child the correct breathing technique to alleviate postoperative pain (e.g. ask him/her to take deep and slow breaths).	1	2	3	4	5

	Not at all	Very seldom	Sometimes	Nearly always	Always
29. When a school-aged child has pain after a surgical procedure					
29.1 I encourage the child by rewarding s/he verbally (e.g. say that s/he has done well so far)	1	2	3	4	5
29.2 I give the child a material reward, what _____ (e.g. something good to eat, magazines/books)	1	2	3	4	5
29.3 I reward the child in some other way, how _____ _____ _____	1	2	3	4	5
30. I use thermal regulation as a method of postoperative pain relief					
30.1 I use cold application to relieve the child's pain, what _____ (e.g. a cold pack, cold food/drink)	1	2	3	4	5
30.2 I use heat application to relieve the child's pain, what _____ (e.g. a heating pad, warm bandages)	1	2	3	4	5
31. I massage a school-aged child to relieve his/her pain.	1	2	3	4	5
32. I alleviate the child's postoperative pain by positioning.	1	2	3	4	5
33. I use the TENS technique (= transcutaneous nerve stimulation) to relieve the child's postoperative pain.	1	2	3	4	5
34. I spend time with the child when s/he feels pain.	1	2	3	4	5
35. I comfort and reassure the child (e.g. speak to him/her in a calm voice or tell him/her that everything will be all right).	1	2	3	4	5
36. I use touching as a method of pain relief (e.g. stroke the child's head/hold his or her hand).	1	2	3	4	5
37. I help the school-aged child with the daily activities (e.g. washing, moving) when s/he has pain after the surgical procedure.	1	2	3	4	5
38. I try to alleviate the child's postoperative pain by making the environment comfortable for him/her.	1	2	3	4	5

	Not at all	Very seldom	Sometimes	Nearly always	Always
39. If you answered any of the alternatives 2 – 5 in item 38, which of the following methods do you use to make the child's environment comfortable					
39.1 I provide a suitable room temperature and good air conditioning	1	2	3	4	5
39.2 I provide the child with a possibility to rest by minimizing noise	1	2	3	4	5
39.3 I encourage the child's parents to bring to the ward some of the child's own belongings (e.g. a teddy-bear/doll, pictures, walkman)	1	2	3	4	5
39.4 I pay attention to interior decoration of the ward (colours, lighting, furniture)	1	2	3	4	5
39.5 other, what _____	1	2	3	4	5
_____					
_____					
_____					
40. I ask a school-aged child to suggest ways to relieve his/her pain in the ward.	1	2	3	4	5

Parental guidance

41. I prepare a school-aged child's parents for the operation by telling them about the following matters					
41.1 what kind of procedure will be done					
41.2 where will the procedure be done	1	2	3	4	5
41.3 by whom will the procedure be done	1	2	3	4	5
41.4 why is it important to do the procedure	1	2	3	4	5
41.5 how long will the procedure last	1	2	3	4	5
41.6 preparations for the procedure (abstaining from food, premedication, etc.)	1	2	3	4	5
41.7 type of anaesthesia (general/local anaesthesia)	1	2	3	4	5
41.8 postoperative placement (recovery room, inpatient ward/ICU)	1	2	3	4	5
41.9 postoperative monitoring in the ward	1	2	3	4	5
41.10 postoperative limitations (e.g. what things can/cannot be done by the child)	1	2	3	4	5
41.11 pain medication after the procedure	1	2	3	4	5
41.12 other methods of pain relief	1	2	3	4	5
41.13 other, what_____	1	2	3	4	5
_____	1	2	3	4	5
_____					
_____					

	Not at all	Very seldom	Sometimes	Nearly always	Always
42. I discuss with the parents in advance the child's possible sensations					
42.1 sensations before the procedure (e.g. fear/anxiety)	1	2	3	4	5
42.2 sensations during the procedure (e.g. pain)	1	2	3	4	5
42.3 sensations after the procedure (e.g. pain/nausea)	1	2	3	4	5
43. If I notice that the parents are feeling fear/anxiety, I discuss that openly with them.	1	2	3	4	5
44. I involve the parents in the child's pain management.	1	2	3	4	5
45. I teach the parents ways to relieve their child's pain after the surgical procedure.	1	2	3	4	5
46. If you answered any of the alternatives 2 – 5 of item 45, which of the following methods do you encourage the *parents of a school-aged child* to use to alleviate their child's pain					
46.1 ask the child to think about/imagine pleasant and positive things	1	2	3	4	5
46.2 distract the child's thoughts away from pain (e.g. by arranging some meaningful activities)	1	2	3	4	5
46.3 encourage the child to relax different parts of his/her body	1	2	3	4	5
46.4 encourage the child to breathe deeply and slowly	1	2	3	4	5
46.5 give the child positive reinforcement after the procedure (reward verbally/by giving a material reward)	1	2	3	4	5
46.6 use cold or heat application	1	2	3	4	5
46.7 massage the child	1	2	3	4	5
46.8 position the child comfortably	1	2	3	4	5
46.9 give the child TENS treatment (= transcutaneous nerve stimulation)	1	2	3	4	5
46.10 spend time with the child	1	2	3	4	5
46.11 comfort/reassure the child	1	2	3	4	5
46.12 use touching as a way to alleviate pain	1	2	3	4	5
46.13 help the child with the daily activities (basic care)	1	2	3	4	5
46.14 arrange a comfortable environment for the child (e.g. by bringing the child's own belongings)	1	2	3	4	5
46.15 other, what _____ _____	1	2	3	4	5
47. I guide the parents in matters related to pain medication.	1	2	3	4	5

48. What other non-pharmacological methods do you use to relieve school-aged children's postoperative pain in your ward?

THANK YOU FOR ANSWERING !

Objects of measurement, variables and corresponding questions in the questionnaire.

Objects of measurement	Variables	Questions
Demographic variables	*(a) informants' background data*	1 – 7
	- sex	1
	- age	2
	- education	3
	- experience of health care	4
	- experience of paediatric surgical nursing	5
	- number of nurses' own children/earlier hospitalizations of their children	6 – 7
	(b) data of working unit	8 – 12
	- hospital/ward	8
	- organization of work	9
	- collaboration with other health care professionals	10
	- organization of pain management	11
	- pain assessment tool	12
Non-pharmacological methods	*(a) Cognitive-behavioural methods*	13 – 29
	- giving preparatory information (cognitive and sensory information)	13 – 22
	- imagery	23 – 24
	- distraction	25 – 26
	- relaxation	27
	- breathing technique	28
	- positive reinforcement	29
	(b) Physical methods	30 – 33
	- thermal regulation	30
	- massage	31
	- positioning	32
	- TENS (= transcutaneous nerve stimulation)	33
	(c) Providing emotional support	34 – 36
	- presence	34
	- comfort/reassurance	35
	- touch	36
	(d) Helping with daily activities	37
	(e) Creating a comfortable environment	38 – 39
	(f) Parental guidance	41 – 47

Non-pharmacological methods in school-aged children's postoperative pain relief.

Appendix B: New Zealand questionnaire

Department of Health Sciences

University of Canterbury

Dear Participant,

My name is Lucy Seldon and I am a student at the University of Canterbury and the Ara Institute of Canterbury. I am studying towards a Masters of Health Science and a Bachelor of Nursing. As part of my Masters degree, I am conducting a small pilot study to determine registered nurses utilisation of non-pharmacological methods of postoperative pain management for paediatric surgical patients. Because you are a registered nurse who works in a surgical, paediatric ward, I am inviting you to participate in this research study by asking you to complete a small questionnaire.

The attached questionnaire takes approximately 15 minutes to complete, and can be submitted by placing the completed questionnaire in the collection box on your ward. Anonymity will be retained throughout the research, with the researcher unable to identify any participants. Participation is voluntary and you may decide to stop filling out the questionnaire at any stage before submission. Once the questionnaire has been submitted to the collection box, answers cannot be retrieved, or withdrawn, due to it not being able to be individually identified. Submission indicates a willingness to participate in the study.

The collection box will remain on your ward for three weeks after distribution of the questionnaire papers. Your time will be compensated by evidence of meeting the requirements of the New Zealand Nursing Competency 4.3: Participates in quality improvement activities to monitor and improve standards of nursing, for your Annual Practising Certificate. To receive evidence of this, please include your email address on the last page of the questionnaire. Your information will remain confidential and will be separated from your questionnaire data.

Your participation is much appreciated and will help determine the use of paediatric non-pharmacological methods of postoperative pain management in New Zealand. The data collected will help with further research, with the overall aim of reducing pain in hospitalised children. If you would like a copy of the results of this study, would like more information, or have any additional questions, please contact me using the details below. Please detach and keep this information sheet if needed.

Sincerely,

Lucy Seldon, BBiomedSc

0273143129

lucy.seldon@pg.canterbury.ac.nz

NON-PHARMACOLOGICAL PAIN MANAGEMENT QUESTIONNAIRE

Background data

Answer the questions by circling the alternative you consider correct or by writing your answer in the space provided.

Respondent's background data

1. Gender
   1 female
   2 male
   3 other

2. Age _____

3. Ethnicity (you may nominate as many as you wish)
   1 NZ European
   2 Māori
   3 other _____

4. Registered Nurse job title
   1 staff nurse
   2 clinical nurse specialist
   3 other _____

5. Experience of paediatric surgical nursing _____ years

The following statements pertain to the use of non-pharmacological methods in postoperative pain relief among *school-aged children (8 − 12 yr)*. In each item, circle the reply alternative that best represents your own actions. **Answer each item**, unless otherwise mentioned (e.g. if you do not use one of the listed methods, circle the alternative 1 = not at all). Also circle one of the alternatives 1 – 5 in the open-ended questions (other, what _____).

Reply alternatives
1 = not at all
2 = very seldom
3 = sometimes
4 = nearly always
5 = always

	Not at all	Very seldom	Sometimes	Nearly always	Always
Children's postoperative pain management					
6. I encourage the child to think about/imagine pleasant and positive matters when s/he feels pain after the operation.	1	2	3	4	5
7. If you answered any of the alternatives 2 – 5 in item 6, which of the following matters do you urge the child to think about					
7.1 a pleasant place	1	2	3	4	5
7.2 a nice excursion/trip	1	2	3	4	5
7.3 a favourite activity	1	2	3	4	5
7.4 other _____	1	2	3	4	5
_____					
_____					
_____					
8. I try to focus a school-aged child's thoughts/attention away from pain.	1	2	3	4	5
9. If you answered any of the alternatives 2 – 5 of item 8, which of the following things do you use as distraction					
9.1 books/magazines	1	2	3	4	5
9.2 talking about the daily lives	1	2	3	4	5
9.3 playing games	1	2	3	4	5
9.4 watching television/videos	1	2	3	4	5
9.5 listening to music	1	2	3	4	5
9.6 hobby crafts	1	2	3	4	5
9.7 humour	1	2	3	4	5
9.8 other _____	1	2	3	4	5
_____					
_____					
_____					
10. I encourage the child to relax different parts of his/her body to alleviate the sensation of pain.	1	2	3	4	5
11. I teach the child the correct breathing technique to alleviate postoperative pain (e.g. ask him/her to take deep and slow breaths).	1	2	3	4	5

	Not at all	Very seldom	Sometimes	Nearly always	Always
12. When a school-aged child has pain after a surgical procedure					
12.1 I encourage the child by rewarding s/he verbally (e.g. say that s/he has done well so far)	1	2	3	4	5
12.2 I give the child a material reward, what _____ (e.g. something good to eat, magazines/books)	1	2	3	4	5
12.3 I reward the child in some other way, how _____ _____ _____	1	2	3	4	5
13. I use thermal regulation as a method of postoperative pain relief					
13.1 I use cold application to relieve the child's pain, what _____ (e.g. a cold pack, cold food/drink)	1	2	3	4	5
13.2 I use heat application to relieve the child's pain, what _____ (e.g. a heating pad, warm bandages)	1	2	3	4	5
14. I alleviate the child's postoperative pain by positioning.	1	2	3	4	5
15. I use the TENS technique (= transcutaneous nerve stimulation) to relieve the child's postoperative pain.	1	2	3	4	5
16. I spend time with the child when s/he feels pain.	1	2	3	4	5
17. I comfort and reassure the child (e.g. speak to him/her in a calm voice or tell him/her that everything will be all right).	1	2	3	4	5
18. I use therapeutic touch as a method of pain relief (e.g. stroke the child's head/hold his or her hand).	1	2	3	4	5
19. I help the school-aged child with the daily activities (e.g. washing, moving) when s/he has pain after the surgical procedure.	1	2	3	4	5
20. I try to alleviate the child's postoperative pain by making the environment comfortable for him/her.	1	2	3	4	5

	Not at all	Very seldom	Sometimes	Nearly always	Always
21. If you answered any of the alternatives 2 – 5 in item 20, which of the following methods do you use to make the child's environment comfortable					
21.1 I provide a suitable room temperature and good air conditioning	1	2	3	4	5
21.2 I provide the child with a possibility to rest by minimizing noise	1	2	3	4	5
21.3 I encourage the child's parents to bring to the ward some of the child's own belongings (e.g. a teddy-bear/doll, pictures, walkman)	1	2	3	4	5
21.4 I pay attention to interior decoration of the ward (colours, lighting, furniture)	1	2	3	4	5
21.5 other, _____ _____ _____ _____	1	2	3	4	5
22. I ask a school-aged child to suggest ways to relieve his/her pain in the ward.	1	2	3	4	5

Evidence for Annual Practising Certificate.

To compensate you for giving up your time and participating in this research project, evidence of meeting requirements for your Annual Practising Certificate will be provided to you.
If you would like to be emailed evidence of meeting the requirements of the New Zealand Nursing Competency 4.3: Participates in quality improvement activities to monitor and improve standards of nursing, for your Annual Practising Certificate, please include your email address below. Your information will remain confidential and will be separated from your questionnaire data.

Email address_____

Appendix C: database search

My initial search was using the CINAHL database using key words P#ediatric* Or Child* And Nurs* And Pain* in academic journals between the years 2006 and 2016. This gave me 7141 results so I added in the key words manag* and distract* which reduced the number of results. I did the same search on the Pubmed database and on Google Scholar.

My next search used key words P#ediatric* Or Child* And Pain* And non-pharmacolo* which gave additional results.

I also conducted a search on CINAHL, Pubmed and Google Scholar using key words P#ediatric* Or Child* And Pain* And non-pharmacolo* and limited it to only New Zealand publications. Finding no results, I opened the date range to include all years. This resulted in no papers which were relevant to my area of research.

Appendix D: University of Canterbury ethical consent

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

HUMAN ETHICS COMMITTEE

Secretary, Rebecca Robinson
Telephone: +64 03 364 2987, Extn 45588
Email: human-ethics@canterbury.ac.nz

Ref: HEC 2016/46/LR

12 August 2016

Lucy Seldon
School of Health Sciences
UNIVERSITY OF CANTERBURY

Dear Lucy

Thank you for submitting your low risk application to the Human Ethics Committee for the research proposal titled "Non-pharmacological Methods in Relieving Children's Pain in Hospital: a Pilot Study".

I am pleased to advise that the application has been reviewed and approved; **subject to the following:**

Data collection cannot commence until the approval from your DHB application has been forwarded to and acknowledged by the HEC.

Please ensure that your data is backed up on the UC server. Hard copies of questionnaires need to be stored at UC in a locked cabinet (Ref: Question 27 of the application form).

With best wishes for your project.

Yours sincerely

pp. R. Robinson

Jane Maidment
Chair, Human Ethics Committee

Appendix E: University of Canterbury Maori consultation

Ngāi Tahu Consultation and Engagement Group

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

22/08/2016

Tēnā koe, Lucy

Re: Non-pharmacological Methods in Relieving Children's Pain in Hospital: a pilot study

This letter is written on behalf of the Ngāi Tahu Consultation and Engagement Group. I have read and considered your proposal and acknowledge that this is a worthwhile and interesting project.

It is well considered and the researcher is clear about how they ought to take participants' (cultural) needs into account.

Thank you for engaging with the Māori consultation process. This will strengthen your research proposal, support the University's Strategy for Māori Development, and increase the likelihood of success with external engagement. It will also increase the likelihood that the outcomes of your research will be of benefit to Māori communities. We wish you all the best with your current project and look forward to hearing about future research plans.

The Ngāi Tahu Consultation and Engagement Group would appreciate a summary of your findings on completion of the current project. Please feel free to contact me if you have any questions.

Nga mihi
Nigel Harris

Acting Māori Research Consultant
Office of AVC Māori
Te Whare Wānanga o Waitaha
Private Bag 4800
Otautahi Christchurch 8140
Aotearoa New Zealand
Phone +64 3 364 2987 ext 6120
cellphone 0273950134
nigel.harris@canterbury.ac.nz

Appendix F: district health board local authorisation

Research Office Project ID	16152

RESEARCHER TO ORGANISE APPROVAL FROM RESPECTIVE MANAGERS

Coordinating or Principal Investigator: *I hereby confirm that all information contained within this application is true and correct. I will take professional responsibility to conduct this research at [redacted] and ensure all consents and approvals are obtained and sighted by the Research Office before research commences. Further, I confirm that conducting this research at [redacted] will have no adverse effect of the provision of publicly funded health care at this locality*	
Signed:	**Date:** 26·8·16

5. Approval From All Areas Where Resources are Accessed

Approvals: *I hereby authorise this application to undertake this research within this [redacted] Department and guarantee the availability of adequate facilities, equipment, staff and any special support which may be required as detailed in the application. I confirm that it is in accordance with current [redacted] policy*

Department name:	1. [redacted]	2.	3.
Clinical Director	[redacted]		
Signature			
Date	25/8/16		
Service Manager	[redacted]		
Signature			
Date	25/8/16		
Other Approving Manager Name			
Title			
Signature			
Date			

RESEARCH OFFICE TO FACILITATE APPROVAL FROM [redacted] GENERAL MANAGER/S

General Manager sign-off

This research will take place in your hospital, do you approve it?

Hospital 1	[redacted]	*Date:* 31/08/16
Hospital 2	*Name:*	*Signature:* *Date:*

[redacted]

Appendix G: district health board Maori consultation

[redacted]

24th August 2016

Lucy Seldon
Health Sciences
University of Christchurch

Re: Non-pharmacological Methods in Relieving Children's Pain in Hospitla: a pilot study

Tena koe Lucy,

Ka nui te mihi tenei ki a koe me tou roopu o nga Kairapukorero ki te hapai o te kaupapa whakahirahira mou, moku mo tatou katoa. Ko Rapunga Korero te mea nui. No reira tena koe me te roopu o ka Kairangahau, tena koutou katoa.

Thank you for submitting your research for assessment by [redacted] I note that your research is a pilot study, involving registered nurses working in the paediatric surgical wards and as such it is always challenging to make comment in terms of achievement for improving Māori Health status.

However it is important to acknowledge the issues pertaining to ethnicity and to consider how ethnicity data will be collected in your study. The Census 2013 ethnicity question is the preferred tool in recording ethnicity. Establishing any ethnicity identified with may highlight within different ethnic populations, understanding, experience and views.

It is a requirement of the ethics approval process that a final report be submitted when the research is complete. A copy of the report should be provided to me at that time. [redacted] would be willing to assist in the dissemination of your findings once your project has reached a conclusion to the appropriate Māori organisations, Māori health professionals and Māori. We are committed to building on-going relationships with researchers in the hope of improving Māori health.

Please contact me should you need any other information that may not have been included in the letter relevant to your research.

Heoi ano

[redacted]

Chairperson
[redacted]

[redacted]

Appendix H: Annual Practicing Certificate evidence

Department of Health Sciences

University of Canterbury

To whom it may concern,

……..a registered nurse, contributed 1 hour of time to a research project in 2016. This project related to a practice issue and had ethical approval from the University of Canterbury's Human Ethics committee.

This time involvement meets Competency 4.3: Participates in quality improvement activities to monitor and improve standards of nursing (Nursing Council of New Zealand, (2007) Competencies for Registered Nurses).

As such it can be used as evidence for the registered nurses Professional Development Recognition Portfolio.

Yours sincerely,

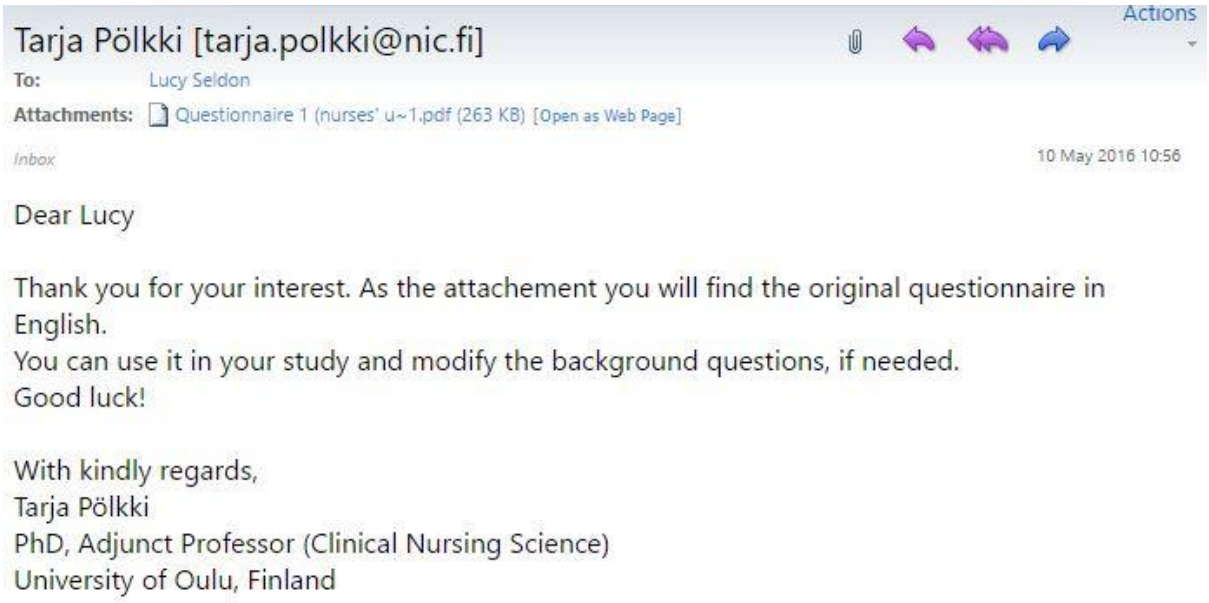
Dr. Isabel Jamieson, PhD, RN, BN, MNurs(Melb), CertAT

Senior Lecturer

School of Health Sciences,

University of Canterbury.

Appendix I: permission from author to utilise original questionnaire



Tarja Pölkki [tarja.polkki@nic.fi]

Actions

To: Lucy Seldon

Attachments: Questionnaire 1 (nurses' u~1.pdf (263 KB) [Open as Web Page]

Inbox

10 May 2016 10:56

Dear Lucy

Thank you for your interest. As the attachement you will find the original questionnaire in English.
You can use it in your study and modify the background questions, if needed.
Good luck!

With kindly regards,
Tarja Pölkki
PhD, Adjunct Professor (Clinical Nursing Science)
University of Oulu, Finland

Appendix J: local district health board policy regarding heat application

[redacted] Nursing and Midwifery Policies and Procedures Manual

Use of Wheat Bags and Hot Water bottles

Statement

The use of wheat bags and hot water bottles is prohibited. Any requests for specific patient groups/individuals must be sanctioned by the Director of Nursing for the area. A local policy must accompany the sanction including instruction on cleaning and disinfection as appropriate.